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SALTON SEA

GUN CLUBS

SITUATION MAP
U.S. DEPT. OF THE INTERIOR
FISH & WILDLIFE SERVICE
SALTON SEA NATL.
WILDLIFE REFUGE

SCALE

SALTON SEA NATIONAL WILDLIFE REFUGE

AND

WATERFOWL DEVELOPMENT AREA

XXXXXXXXXXXXXXXXXXXX

NARRATIVE REPORT

SEPTEMBER, OCTOBER, NOVEMBER, DECEMBER

1955

XXXXXXXXXXXXXXXXXXXX

UNITED STATES DEPARTMENT OF INTERIOR
FISH AND WILDLIFE SERVICE
BRAWLEY, CALIFORNIA

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REFUGEE PERSONNEL

Regular Personnel

EDWARD J. O'NEILL	Refuge Manager
WILLIAM NUSS	Refuge Manager (Asst.)
JOSEPH L. CUDDY	Clerk Typist
CLYDE W. STEWART	Foreman, Farm Operations
HENRY STEER	Mechanic

JOSE' BARROS	Tractor Operator
LEO E. COX	Tractor Operator
CARL W. FORD	Tractor Operator
CHESLEY WILLIAMS	Tractor Operator
PAUL E. WILLIAMS	Tractor Operator
ALFRED W. MCFARLAND	Tractor Operator
MELVIN FORD	Irrigator
JOHN BARROS	Irrigator
SYLVESTER BARROS	Irrigator
MANUEL CARDONZO	Irrigator
JULIO RIBEIRO	Irrigator

Temporary Personnel

None during period.

NARRATIVE REPORT

I GENERAL CONDITIONS

A. Weather & Conditions

During the first half of September maximum temperatures did not drop below 108°. About 3:00 PM September 15th it happened.....the weather broke. High temperatures, which had persisted since the previous period dropped. Light winds, increasing stronger toward evening whipped into a hot dust storm. The following day a persistent westerly breeze came up and continued blowing through most of the night. The result was most delightful and spelled the welcome end to a long summer of heat and humidity. Everyone broke out with his best smile and morale went up several points.

On November 25th earthquake tremors, which reached an intensity of 5, shook up the Valley causing some \$ 25,000 damages in Brawley.

The last few days in November saw very dense fog during morning hours.

Tabulated below is the weather data as compiled by the El Centro Naval Air Station, Seeley, California:

<u>MONTH</u>	<u>MAX.</u>	<u>MIN.</u>	<u>PRECIPITATION</u>	<u>DAYS OF -25MPH WINDS</u>
September	114°	63°	0.0	6
October	104°	54°	0.0	7
November	89°	41°	Trace	8
December	81°	37°	.07"	5
Totals07	26

B. Precipitation and Water Conditions

During September Salton Sea readings showed a .3 foot drop in elevation. The reading on October 1 was -234.75 compared to -234.45 September 1. November readings showed a .05 foot gain in water elevation. The December 1 reading was -234.60 feet compared to -234.65 November 1.

There has been a gain of .3 foot in the sea's level since December 1, 1954 when the reading was -234.90.

With a very low incidence of winds during the period the usual wave action and land washing did not occur.

C. Fires

No fires occurred on the refuge during the period.

II WILDLIFE

(By William Nuess, Asst. Refuge Manager)

A. Migratory Birds

1. Populations and Behavior

Waterfowl populations on the Salton Sea Refuge and adjacent sea fronts for the current reporting period paralleled those of the corresponding 1954 reporting period with few exceptions. The most outstanding of these is the American Widgeon of which but fifty percent (50%) of the expected numbers have shown to date. There has been much speculation by some people on the reason but the general consensus of opinion is that the flood waters in Northern California and Southern Oregon are causing the truancy of this species.

The Canada Goose population is continuing it's downward trend, peak numbers being considerably below that of 1954. White-fronted and Snow Goose populations seem to have held their own, even showing a slight increase over the 1954 peak.

Hunting during the first half of the 1955 season, although not good, was considerably better than the second half has been to date. Numerous limits were checked the first half of the season, but it has been unusual to find a limit with any birds at all in the bag the second half. This is directly opposite from what was expected and much grumbling and grouching can be heard from so-called "sportsmen" as a result. Most of them attribute this to a lack of birds, however it is not borne out by the census figures except in the case of the widgeon. It is more likely that the warm, balmy days with little or no wind have been the main contributing factor. The birds refused to move off refuge units and the Salton Sea where they were observed resting in large rafts. One exception to the above mentioned are the members of "gun clubs" who have fared quite well through the use of "baiting grounds".

A tabulation of populations for these areas for the past four years follows:

COMPARISON OF WINTER INVENTORY TABULATIONS

<u>SPECIES OBSERVED</u>	1952	1953	1954	1955
<u>Ducks</u>				
Mallards	10	240	270	220
Gadwall		20	31	220
Am. Widgeon	75,230	71,330	62,550	34,250
G-W Teal	1,030	5,980	2,255	4,590
Shoveler	21,290	9,180	3,805	8,970
Pintail	16,440	37,530	19,645	8,970
Redhead	90	10	120	90

<u>SPECIES OBSERVED</u> (Cont'd)	1952-53	1953-54	1954-55	1955-56
<u>Ducks</u>				
Canvasback	1,810	3,810	2,520	1,850
Scaup	29,600	18,040	8,030	15,450
Cinnamon Teal		10	100	20
Goldeneye	10	60		400
Bufflehead	260	450	160	180
Ruddy Duck	17,680	9,910	8,940	6,000
Ring-neck				10
Surf Scoter		10		
Merganser		40	300	110
Unidentified	22,050	4,260	12,410	790
<u>Geese</u>				
Snow Goose	20,830	13,750	12,134	9,140
Canada Goose	4,150	1,490	1,625	1,320
White-fronted Goose	100	100		80
<u>Swans</u>				
Whistling Swan			16	30
TOTAL DUCKS	185,500	160,880	121,140	81,920
TOTAL GEESE	25,080	15,340	13,759	11,540
TOTAL SWANS			16	30
TOTAL COOTS	49,210	36,180	21,855	24,220

2. Geese & Swans

Geese were first observed on September 20th when 2 Canadas and 4 Snows were seen. On September 30th, 70 White-fronted Geese were observed in flight over Unit I. The buildup continued at a rapid pace and by the first week of November 2,000 were present. This is the largest concentration of White-fronts ever recorded at Salton Sea.

Canada Goose populations, as previously mentioned, appear to be in dire straits. They did not show up in appreciable numbers until the last week in November when 630 birds were known to be using the refuge. The peak of the population did not materialize until the second week in December, when 720 were noted using the refuge. This number is far short of the mid-December peak of 1,150 birds in 1954 and the late November peak of 2,470 birds in 1953.

Hunting does not appear to have hurt the Canada Goose population too much this year, but any decline in total number is hard-felt since the population is at such a low level. The main reason for the low take is that the birds have been making extensive use of Unit I (which is closed to hunting) and the Elmore Ranch, where armed guards have been employed to protect them for private hunts staged periodically.

Snow Geese followed their familiar pattern, first appearing in mid-September with notable influxes the first week in November when 11,000 were observed and again early in December when an estimated peak of 11,000 was attained.

Use of refuge Unit II by this species was quite pronounced the first half of the season. However, with the opening of Unit II to hunting the second half there was a mass exodus to Unit I and sea fronts. The last two weeks in December there was almost a complete absence of the species and it was not until the aerial survey of December 27th and 28th that they were noted in a large raft well out on the Salton Sea.

Three Ross' Geese were observed on Unit II late in November. State Fish and Game men turned over a crippled specimen which was banded and placed in the enclosure at Unit I. It was not long before he recovered enough to take wing.

Only four Cackling Geese were noted on refuge units this report period. There have been reports of others, but these were never confirmed.

One Blue Goose was reported taken by an unidentified hunter and another was seen resting on Unit I several times.

5. Ducks

Shortly before the opening of the first half of the 1955 hunting season, Pintail populations, which had been gradually building up on the refuge units, dropped off to almost nothing. With the break in the season normal numbers were again found using the refuge, but with the opening of the second half of the season birds using the refuge units again dwindled to but a small percent of the customary numbers. This is presumably due to "baiting" on "club areas".

ESTIMATED ACRES BEING FLOODED AND LEACHED IN IMPERIAL VALLEY SHOWING USE BY PINTAILS

1955

<u>MONTH</u>	<u>*ACRES FLOODED</u>		<u>TOTAL</u>	<u>PINTAILS OBSERVED</u>	<u>TOTAL PINTAILS IN VALLEY</u>
	<u>OLD</u>	<u>NEW</u>			
September	-	573	573	2,220	20,180
November	-	450	450	2,360	19,335
December	-	600	600	-	38,790

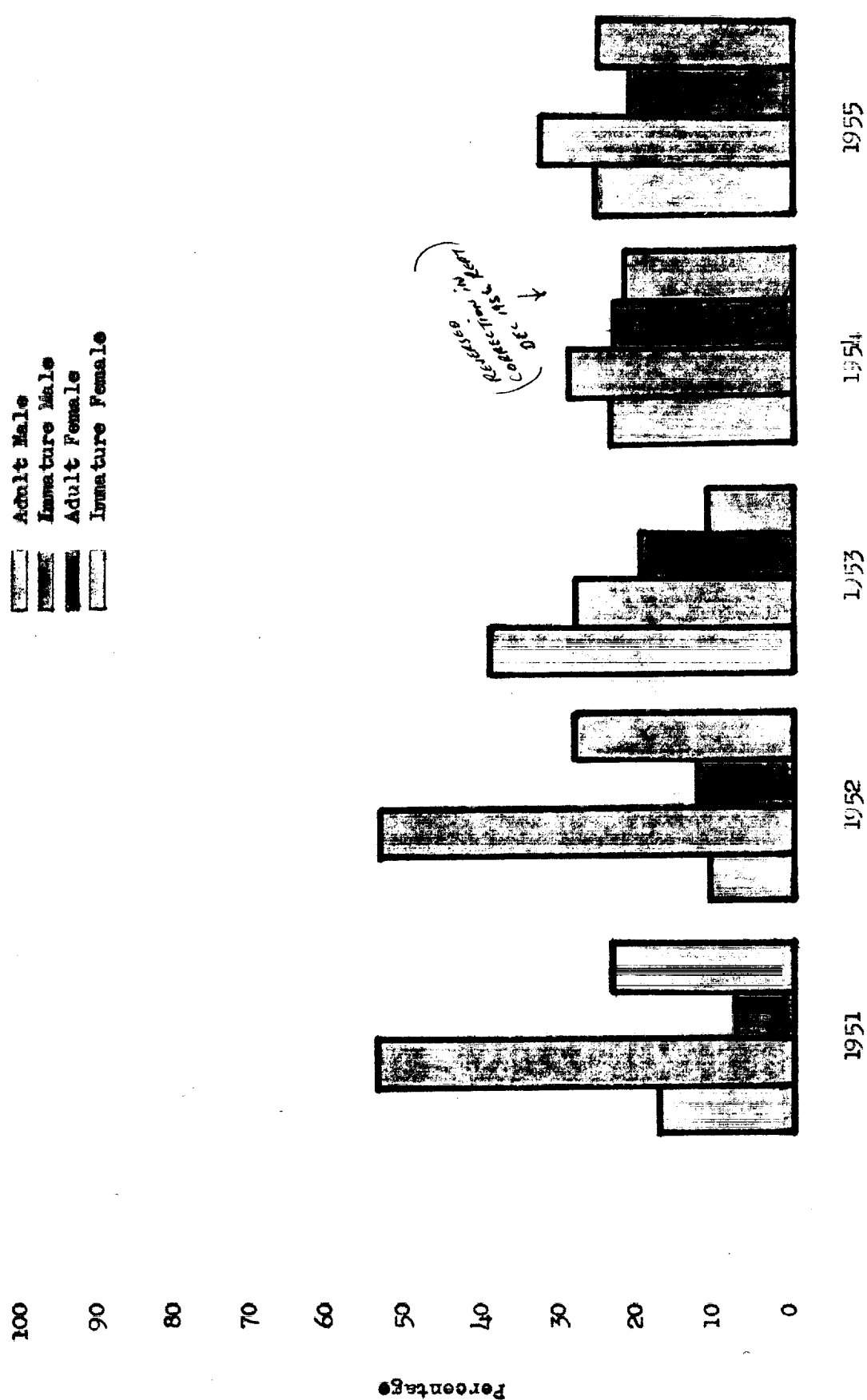
*(Old and New areas determined by lack of or degree of vegetation established)

As indicated in previous reports the leach areas have proven quite important as resting and feeding areas for non-diving ducks. The drop in acres over previous years reflects to some extent the fact that free water is no longer allowed for leaching.

There were 3,958 Pintails banded under the refuge permit this period. There seems to be a very gradual upturn of the ratio in favor of the immature birds. (See attached chart for details of trend).

One outstanding return received this report period was from Chukotsk Peninsula near Anadyr, U.S.S.R.. Others include Alaska, Saskatchewan, Alberta, British Columbia Canada, and South Dakota.

. (END)



Distribution of age and sex of pintails banded at Salton Sea during fall banding for years 1951-55, inclusive.

SEX-AGE RATIO OF

PINTAILS BANDED AT SALTON SEA REFUGE, 1948-55, INCL.

AUGUST THRU NOVEMBER 30TH

YEAR	MALE	FEMALE	TOTAL	RATIO	AM	IM	AF	IF	TOTAL A.	TOTAL I	TOTAL
1948-49	3	13	16	18:82							
1949-50	150	272	422	36:64	37	69	95	97	179 132	166	296
1950-51	107	215	352	30:70	0	5	0	28	0	33	33
1951-52	4273	2519	6797	62:38	523	1,764	222	762	745	2,526	3,271
1952-53	3222	2017	5239	62:38	313	1,636	230	897	543	2,533	3,076
1953	4619	1992	6611	70:30	2,579	1,812	1,111	732	3,690	2,514	6,204
1954	3795	3035	6830	56:44	1,001	1,197	900	878	1,287 1,901	2,075	3,978
1955	4197	3199	7396	57:43	960	1,247 1,274	779	945	1,739	2,219	3,958
TOTALS	20,302	13,295	33,597	60:40	5,146	4,751	3,337	4,339	8,750	12,096	20,846
					5,413	7,757	3,337				

* Years run from July 1 to June 30

1953-55 figures January through December

6,230	19,663	58:42	1,032	1,030	689	1	1	1	1	1	38:61
24,571	44,320	60:40	6,613	6,613	4,811	5,531	1	1	1	1	41:59

SUMMARY OF BIRDS BANDED AT SALTON SEA REFUGE, 1947-52 INCL.

<u>Species</u>	<u>1948</u>	<u>1949</u>	<u>1950</u>	<u>1951</u>	<u>1952</u>	<u>1953</u>	<u>1954</u>	<u>1955</u>	<u>Total</u>
<i>E. G. B. C.</i>							<u>315</u>		<u>315</u>
Gull-billed Tern		100	4						104
Caspian Tern		15	2						17
White Pelican		144	199	100	200	13	34		697
Mallard		50			4	1	11		78
Gadwall							2		3
Widgeon		25	23	6	267	2,013	3,393	1,258	6,985
Green-winged Teal	1,07	2	271	142	1,956	1,656	1,601	1,710	7,745
Blue-winged Teal					2			3	5
Cinnamon Teal	142			70	1,044	98	60	1,260	1,934
Shoveler				2	77	6		19	104
Pintail	199	553	234	3,458	6,805	9,811	6,830	7,396	35,302
Redhead					57	36	80	13	216
Canvasback					11	2	2		15
Bufflehead							1		1
Lesser Scaup					5	7	2	1	15
Ring-necked Duck						1			1
Ruddy Duck			1		9	25	24	11	140
Fulvous Tree Duck		2	144	148	33	12	4	36	249
Mallard-Pintail Hybrid					1				1
Lesser Snow Goose						12	12	6	30
Ross' Goose						1	1	1	3
White-fronted Goose						1			1
Canada Goose				3	1		2		6
White-faced Glossy Ibis						2			2
Common Egret						6	109		115
Great Blue Heron						2	25		27
Snowy Egret					1	2	27		30
Black-crowned Night Heron						5	3		8
Sora		1	1	2					4
Florida Gallinule		2	5			1	2		10

(Continued on next page)

SUMMARY OF BIRDS BANDED AT SALTON SEA REFUGE, 1947-55 INCL. (Cont'd)

<u>Species</u>	<u>1948</u>	<u>1949</u>	<u>1950</u>	<u>1951</u>	<u>1952</u>	<u>1953</u>	<u>1954</u>	<u>1955</u>	<u>Total</u>
Coot	8	121	236	58	101	537	359	303	1,723
Northern Phalarope						8			8
Wilson's Phalarope						2			2
Long-billed Dowitcher						4			4
Stilt Sandpiper						1			1
Mourning Dove		2	2		9	332	28	132	512
Burrowing Owl						1			1
Roadrunner						2			2
Yellow-headed Blackbird		14				3			17
Red-winged Blackbird		9				19			28
Western Meadowlark						5			5
Loggerhead Shrike						2			2
TOTALS	656	1,060	999	3,989	9,943	14,689	13,581	12,149	56,516
							<u>315</u>		<u>315</u>
							13,896		56,831

* Includes 16 Pintails banded in 1947 (only birds banded that year).

4. Water, Marsh, and Wading Birds

On September 20th 2,000 White-Pelicans showed up just off-shore at Red Hill in Unit II. The occurrence somewhat coincides with influxes of previous years however, represents the largest flock yet observed in the fall months.

The aerial census of September 21-22 turned up 710 in Imperial Valley and 21 along the Colorado River between Yuma and Blythe.

Seven (7) Brown Pelicans were seen on Unit I September 19th. The flock appeared to be all immature birds.

An estimated 1500 Glossy Ibis and 40 Wood Ibis were using the refuge September 17th. A few days later, when the aerial census was made we failed to discover more Glossy Ibis but the Wood Ibis figure raised to 450 for the entire Valley. October 19th only 4 Wood Ibis could be found.

A count of 13 Sandhill Cranes was made October 21st. On the 22nd some 27 were seen. November 1st we observed 19. Last record was on December 1st when 5 were seen at headquarters.

Several American Bitterns were observed during December. Earliest date was November 23rd.

A Least Bittern was seen several times at Unit I during December.

5. Shorebirds, Gulls, and Terns

On September 3rd two (2) Solitary sandpipers were seen near the north portion of Unit I along the Sea. Again September 18th 4 were reported by State Fish and Game biologist William Anderson.

On September 21st there appeared to be an almost overnight exchange of series. Black-necked Stilts dropped noticeably low in numbers while thousands of American Avocets lined the shores of the sea and fresh water units. On September 21st we estimated 19,100 avocets present. A most unusual individual with black mottled belly feathers was seen several times at Tract C, Unit I.

As late as September 2nd Mr. William Anderson observed one Laughing Gull in an irrigated field near Westmorland and one Franklin Gull October 3rd.

First note of a Black-bellied Plover was September 29th.

A single Red Phalarope was seen on Salton Sea October 3rd by Messrs William Anderson and William Forward.

October 17th 50 Snowy Plovers were present.

A count of 22 Caspian Terns was made October 17th.

Mountain Plover showed up November 18th near Unit I when 6 were observed.

Red-Backed Sandpipers were seen during December.

6. Disease

On September 21st 3 sick and 6 dead White Pelicans were noted near the New River delta. Cause of sickness was not determined.

November 1st a sick Common Egret was observed near Unit I. The bird, barely able to stand on it's feet kept turning in circles. Excreta was very watery, and in a matter of minutes the bird died. A few days later a White Pelican acting up the same way was noted off shore at Tract 7, Unit I.

7. Food and Cover Conditions

No change in conditions noted. With the continuous, rapid rise in the elevation of Salton Sea less and less growths of cattails survive or establish around the river deltas, drains and canal outlets.

Members of the University of Southern California research group, stationed at Salton Sea in Riverside County for the purpose of investigating the State Fish and Game Department's marine fisheries project, report that the state now desires them to work on aquatic plant introductions. (For comments on agricultural foods and use see page 14 Physical Developments).

B. Upland Game Birds

Population of ring-necked pheasants on refuge units lowest on record.

Gambel quail population about same status as last year. Fewer broods of young and numerous instances of pairs with no young noted. Hunting pressure on this species around the refuge units was very heavy. With the gradual reduction in refuge acreage it is a matter of time when the species may lose it's status of "fairly common". A brood of 11 month-old birds was observed September 3rd. On September 18th six young (3-weeks old) were seen.

C. Other Birds

Mourning Doves, despite reports of huge population increase (by local wardens), appeared to be of about the same status as last year. However, just prior to the hunting season opening (September 1), the population appeared definitely lower according to our locality road

counts which have been made for the past six years. Hunter's take the first two weeks was estimated to contain about 75% immature or young birds reared locally. With five week-ends during September it would be difficult to estimate the large number of visiting hunters. Donald's Station at Brawley, California advised that they picked and packed more than 250 limits. That would mean 2500 doves handled by one firm.

Despite the very low population of White-winged doves in Imperial Valley the species continues to receive blanket regulation (bag limit) treatment. The fad by some individuals to obtain a limit of White-winged doves is gaining momentum to the detriment of the few pioneering birds which have become established in this region. The newspapers always give the feat a write-up similar to the following..... "One Brawley foursome today was claiming a record for its first days shooting in dove season. From its early morning jaunt, the group came back with 40 white-wings. Members of the group were Charles Needy, Dr. Russell Jones, Clint Rich and Sgt. John Flint.

"All four have been bragging that nowhere else have so many white-wings been bagged, and they won't say where."

.....(Well, our guess is they went to all the eucalyptus tree groves where the species rests in the heat of the day, shot-gun pruned half the foliage and obtained the "40 White-wings!")".

Two days prior to the opening of dove season we were engaged in showing the local state refuge manager, district game supervisor and regional manager over the refuge. In one small grove of tamarix trees where we parked they were shown 3 nests containing newly hatched and partly grown Mourning dove squabs. (The concern over probable numbers lost through the early September hunt did not even draw a reply).

Since we had been actively banding nestlings up to the seasons opening we know of several places where nestlings occurred that hunters, seated under the trees, must surely have bagged the parent birds either during the morning or evening incubation "break" between sexes.

Just prior to September 1st several late fields of flax were harvested in the vicinity of Unit I. Such activity often causes large flock concentrations where hunter success runs high. One trio of hunters reported obtaining limits in 20 minutes after a 4 hour drive from Los Angeles!

On September 3rd two ravens were noted at Unit II.

A lone duck hawk showed up September 17th.

Two Kingfishers were seen September 21st.

By September 24th Yellow, Orange-crowned and Audubon Warblers were here.

An immature partial albino roadrunner (the first case of albinism in the species we have ever heard of) showed up at Unit II. Observations have always been difficult and limited to only a fleeting glimpse. It appears that the bill is light gray and the eyes very light, possibly on the pink side. With a couple of black tail feathers and a few dark feathers on the wings the specimen at first glance has all the appearances of an avocet in fall plumage. The bird was first observed September 26th and seems to inhabit a rather limited area consisting of the sence rows and open land of two 160 acre fields in refuge Unit II.

The first Red-shafted flicker of the season was noted September 29th.

On October 5th Mr. William Anderson of California Fish and Game Department observed a Mountain Chickadee in the Valley near Niland - probably the first record for the species in this low desert region.

Townsend Warblers were seen October 15th.

On October 22nd Red-breasted Nuthatches were recorded.

A flock of about 300 Brewers blackbirds showed up October 31st.

A Vermillion Flycatcher was seen at Unit I November 12th. At the same time hundreds of Mountain Bluebirds were inhabiting local agricultural fields.

In mid-November Oregon Juncos and either slate or pink-sided (undetermined) Juncos showed up.

Robins were here as early as November 27th. Mr. William Batley, of Brawley, reports that four remained all summer in the back-yard trees where the lawn sprinkler ran most of the time.

Green-backed Goldfinches were noted December 24th.

D. Fur Animals, Etc.

Status about same as per previous comments. Mr. George O'Shane, trapper, started working the New River and north boundary of Unit I during December for muskrats, skunk and racoon. Assistant Refuge Manager Mues checked O'Shane's take of furs on December 3rd. The hunting season interfered to the extent that trapping was discontinued in December.

E. Fish

Dead and dying small marine corvina continue to float shoreward from the sea.

Mullet started spawning, or at least were first noted moving up the delta of Alamo River, November 3rd. On November 8th the writer and Pilot-Biologist Ray Glahn noted large schools of mullet in the sea around dead submerged tamarix growths west of the New River delta. The same day a number of unidentified 6 to 8 inch fish were seen floating on West lake.

Sometime in February 6,000 Thread-fin shad were introduced into Lake Havasu on the Colorado River. Probably the most amazing reproduction and migration phenomenon ever to occur in these parts took place. In nine months the species has moved hundreds of miles to Salton Sea where it is reported to be reproducing into the "blue millions". Shad have been recovered in the Wellington Canal east of Yuma, Arizona and the All-American Canal with its miles of distribution channels through Coachella and Imperial Valleys. Biologists claim this will be a boon providing food for the introduced gulf crockers which in turn furnish food for the corvina or sea bass which is struggling to become established in the saline waters of the sea.

F. Waterfowl Depredations

Lower crop depredations by species of waterfowl continue to reflect the overall downward trend in populations, expansion of habitat and provision of foods.

Some puddling by Pintails occurred in September and October. The Hudson ranch south of the state Wister area received some damages on newly seeded and irrigated land.

From August 15th through mid-November two Mexicans with .22 rifles patrolled a heigera crop on the Chuck Seybert fields due east of refuge headquarters. The problem was Redwing blackbirds and White-crowned sparrows.

There seemed to be a pronounced influx of pintails into the general Valley about September 16th. On the 17th an estimated 4,000 pintails were observed puddling in a green crop of milo on the L.E. Sinclair place 2½ miles east of Unit I along county road 66.

The usual flow of propaganda from local individuals served to keep the pot boiling and unadvised people somewhat prejudiced toward waterfowl in general, on the premise their crops were in great jeopardy.

Some alfalfa grazing by widgeon was reported by the Elmore Ranch, due west of refuge Unit I on the west shore of Salton Sea and on the

Seybert Farms in the Wiest district north-east of Brawley.

Ring-billed gulls became a nuisance on the Woods ranch 2 miles north of the Highways 80 - 111 intersection, east of El Centro. Lessee Sam Donabedian lost numerous watermelon hot caps which gulls pecked, tore or matted down. Mr. Woods, the ranch owner complained that gulls, loafing in another field, were killing new lettuce by strong excreta and trampling. A date grove on the ranch was the main attraction where the gulls have always fed on the inferior date crop.

III REFUGE DEVELOPMENT AND MAINTENANCE

A. Physical Developments

1. Cultivated Crops

Cultivated Crops during Period

Unit I.

*Acres under lease	3340
Acres under fallow.	160
Acres planted	1060
Acres Producing crops.	960
Acres under Sump, River, Backwaters, etc	1740
Acres being leached	80

*(includes former State Unit A - 780 acres)

<u>Crops Available (Acres)</u>	<u>Green</u>	<u>Mature</u>
Barley	400	180
Cattails	90	-
Wild Millet	-	90
Sudangrass-Red-top Sorghum	-	200
Totals	490	470 (960)

The program of cropping refuge tracts of land was carried on consistent with established practice.

Leaching on the south half (80 acres), of Tract C, where a good crop of Wild Millet was produced, was discontinued in mid-September to prevent any unusual concentration of pintails near the Fred Johnson place which was being pre-irrigated and planted to flax. The north half of this new parcel of land (80 acres), was contour bordered and by mid-December both fields (160 acres), were under water.

The remaining portions of Unit I produced crops as shown on the attached map.

The sudangrass-sorghum combination was not so effective this year due mainly to the intense boundary hunter pressures. The seed crop has shattered and most of it has been lost on the ground to rodents and small birds.

Green barley (Hanschion) production at Unit I was very poor this year and only provided two grazings by snow geese. White-fronts and Canadas used the field during late December. The crop cover is very spotty.

Cattails at Unit I were not as productive as last year due to washouts in contours at a rather critical growth period. Utilization took place during November and early December.

Mature barley was the main food item for geese and pintail ducks however, boundary hunting pressures and airplane harassment often prevented normal utilization for days at a time.

Subbing from runoff waters by the Reseda Club east of Tract 9 is still a problem. The area will probably be reflooded for cat-tails.

Contour borders broke in the new Richmond gun club due east of headquarters and flooded refuge access roads and part of Tract 4 delaying farming operations there during December.

Unit II.

Acres under lease	1277
Acres under fallow	--
Acres planted	1020
Acres producing crops	980
Acres under sump, river, backwaters, etc.	257

<u>Crops Available (Acres)</u>	<u>Green</u>	<u>Mature</u>	
Barley	480	260	
Cattails	50	-	
Wild Millet	-	50	
Sudangrass-Red-top Sorghum	-	140	
	<hr/>	<hr/>	
Totals	530	450	(980)

All green barley (Hanschion) crops (480 Ac.) produced fair to good growths. Irrigation was impossible after the Lea Act Lands hunting season opened (December 10th).

The sudangrass - Red-top cane crops (Tract 3, 40 Ac.) was the best

ever produced. It attracted considerable attention along the refuge access road and one jobber even inquired to see if we were interested in having it harvested and sacked.

The cattail - Wild millet crop produced an excellent growth at Tract 9 (100 Acres).

Mature barley fields, (320 Ac.) particularly Tracts 7 - 14 (160 Ac.) provided a good crop and was in fair condition considering the long period since it ripened last spring.

The large drain running west through Unit II along K-lateral became so choked up that at times it was difficult to get water to drain from Tracts 1 and 2. The I.I.D. during November dredged the drain and conditions are now much improved however, subbing hurt the field some.

A. Comments on Crop use

A total acreage of food comparable to last years conditions was produced on the refuge units. At Units I and II both green foods and cattail yields were way below "standard".

Several thousand blackbirds "lived" in refuge Wild millet crops which gave good relief to farm crops.

Mature barley (Mariot) was the main item of food produced for both ducks (pintails and G-W Teal) and geese, however boundary hunting pressures and airplane harassment, as mentioned, often prevented normal utilization for days at a time.

Sudangrass was left standing over most of Unit II as a result of hunting disturbances.

After the hunting season opened the geese flew back and forth between units for hours trying to find a safe place to feed.

B. Receipt of Seed and Stock

Ten tons of barley seed (Hanshion) was shipped from Tulelake Refuge for early fall green crop. With the early cropping and hunting program it is generally necessary to replant green barley. By using the Tulelake seed considerable saving on certified seed is realized.

IV ECONOMIC USES

No activities under this heading.

V. PUBLIC RELATIONS

A. Recreational Uses

On November 11th the San Bernardino Audubon Society visited and toured refuge units.

November 19th and 20th the Pomona Valley Audubon Society visited and toured refuge Units I and II under Mr. Nuess's guidance.

On December 28th Mr. Nuess conducted a tour of refuge unit I for some 30 boy scouts from Pomona, California.

December 30th thirty students under the direction of Arthur Nelson of San Francisco State College visited and toured Unit I. The group showed considerable interest in the project and asked numerous questions following a brief outline talk presented to them.

Public Uses

Visitor Days

A. Fishing uses	None
B. Hunting use	600 est.
C. Miscellaneous	450 est.

Total 1050

Numerous other visitors toured both refuge units but no specific identification or count was possible.

B. Refuge Visitors

<u>NAME</u>	<u>DATE</u>	<u>IDENTIFICATION</u>	<u>PURPOSE</u>
Mr. John Jansson	9/1, 10/3	Cal. F&G, Los Angeles, Cal.	Tour
Mr. John Parrish	9/1, 10/3	Cal. F&G, Calipatria, Cal.	Tour
Mr. John Laughlin	9/1, 10/3	Cal. F&G, Riverside, Cal.	Tour
Mr. William Anderson	9/8 (numerous)	" " Calipatria, Cal.	Waterfowl
Mr. William Forward	" "	" " " "	Banding
Mr. Clint Lostetter	10/3	U.S. F&W, Berkeley, Cal.	Tour
Mr. Baxter Loveland	"	Farmer Brawley, Cal.	Tour
Mr. Donaldson	"	Gas Station Operator, Brawley	Tour
Mr. Rudolph Miller	"	Market News Svc., El Centro	Tour
Mr. Bill Stadler	"	Editor, Farm Bureau Magazine	Tour
Mr. Howard Loveland	"	Farmer Brawley, Cal.	Tour
Mr. James Reynolds	"	Cal. F&G, Warden - Brawley, Cal.	Tour
Mr. & Mrs. Bud Chapman	10/6	U.S. F&W Tulalake Refuge	Visit
Mr. A.W. Elder	10/10, 12, 27	" " " Agent Los Angeles, Cal.	"
Mr. E.D. Morton	10/14	Photographer, Tucson, Ariz.	"
Mr. Ed. Udey	10/18	Publicity Agent Moody Inst.	"
Mr. & Mrs. Walter Gresh	10/23	Director, U.S. F&W, Atlanta, Ga.	Tour
Mr. Ray Glahn	9/21, 11/8, 12/27	U.S. F&W, Willows, Cal.	Aerial Survey
Mr. Wilfred Anderson	10/9	" " Portland, Ore.	Qtrs. Survey
Mr. Arnold Small, ETAL	12/27	L.A. Audubon Society	Christmas Census
Mr. R.M. Rutherford		U.S. F&W - Washington	Visit
Mr. Warren Allred		" " - Albuquerque	"

Mr. J.T. Long

11/15/55 U.S.G.S - BRAWLEY

CON TOUR MAPPING

<u>NAME</u>	<u>DATE</u>	<u>IDENTIFICATION</u>	<u>PURPOSE</u>
Mr. Jim Ashley		U.S. F&W - Portland, Ore.	Visit
Mr. Harold Peer		Overton Mgt. Area, Nevada	"
Mr. Eugene Sprout		Nevada, F&G Engineer	"
Mr. & Mrs. Cleveland Grant	12/22	Photographers	Tour & Visit
Mr. Thomas D. Burleigh		U.S. F&W-Biologist, Moscow, Idaho	" " "

C. Refuge Participation

On October 11th the writer and Manager (Asst.) William Nuess attended the annual meeting of Service, Arizona and California wild-life law enforcement officers held at the Service's Yuma, Arizona offices under the direction of Refuge Manager Gale Monson.

Some 22 employees, state and federal, were in attendance.

Discussions included the following:

- (1) Colorado River waterfowl seasons. The California Commission had announced the season opening day as October 27th. (Actually the date opening is October 28th.). The group discussed the problem and decided to honor any violator's references to bonifide news clippings, etc. It was also suggested by Arizona rangers that all boat landings could be contacted and advised of the error.
- (2) California hunters who land on the Arizona side of the line must have an Arizona non-residence license.
- (3) An Arizona hunter can enter California with an Arizona waterfowl bag limit (2 day bag), if he declares it at the nearest port of entry.
- (4) Earlier opening time on Arizona side than the California side of the Colorado River, due to time zone change, will be enforced.
- (5) Shipping in Arizona ---- Shipment of game is in the shippers possession until delivered by the carrier. California laws do not bind the hunter so well and he can ship to members of his family or friends and actually proceed to go obtain another limit.
- (6) California now has a waste law. Waste of coots and widgeon under these provisions were discussed.
- (7) California Wister-Hazzard areas will open at noon rather than one-half hour before sunrise due to failure by commission to correct the automatic opening date provisions.

On October 23rd a small group representing the Imperial Valley Farm Bureau Depredations Committee toured refuge Units A, I and II. In the evening the writer and Mr. Nuess attended a depredations meeting at Brawley.

On December 19th the writer and Mr. Nuess were called out to rescue two hunters stranded on Salton Sea after their boat sank.

On December 27th Messrs Arnold Small (leader), Pat Gould, Bill Hawkins, Paul Herman, John Tramontano, Brian Doly and Bill Loft-house cooperated in a Christmas bird census of the refuge units, adjacent Salton Sea shoreline and the State Finney-Raymer areas.

D. Refuge Hunting

To be covered in next Narrative Report.

E. Publicity

Publicity received by the refuge consisted of hunting success. Such publicity, released by the California Fish and Game Department, came way short of giving full recognition to the Service.

F. Violations

Several cases filed upon will be reported in the next narrative.

The following represents cases processed to date:

<u>NAME</u>	<u>VIOLATION</u>	<u>FINE</u>
Mr. Ottis H. Davis Lawndale, Calif.	Loaded Gun in vehicle and trespass on refuge	\$ 35.00
Mr. Howard M. Davidson Lawndale, Calif.	" " " " " "	\$ 35.00

Airplane harassment continued as in previous years however, it was less serious than last year.

VII OTHER ITEMS

The hunting seasons in Baja California and Sonora Mexico were listed this year as follows:

Doves, Sept. 1 through Dec. 31; 20 per day.
Ducks, Nov. 16 " Mar. 15; 15 per day.
Geese, " " " " " " " "

For several years now Imperial County has attempted to force the U.S. Navy to construct a road through the Chocolate Mountains in exchange for an old trail leading over to Blythe, California. The trail is in the Chocolate Mountains gunnery range and local people claim it is the last link in the famous north-south highway to South America.

The U.S. Attorney General has filed for condemnation of 218,771 acres contained in the range. This area contains good coveys of quail, and a few guzzlers installed by the state. Ironically the same people who worked so hard to have the Military, with it's huge spendings, locate in these parts are now opposed to relinquishing the operations space.

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The hunting season as usual brought a few accidents. Seven year old Phyllis Burckler of Brawley was shot in the right shoulder during dove season.

Mr. Kessler Wicks of Los Angeles was treated for having gunshot pellets in his left hand and beneath his left eye.

Another hunter was shot during December on the State's Hazard Area.

-----0-----

Our own Bill Mues received publicity too. While searching for a house Bill resided at the Dunlack Hotel, Brawley. One morning Ismael Hernandez and Robert Flores of Brawley broke into his car and made off with clothing, sleeping bag, .22 rifle, etc worth some \$ 260. All items were recovered in short order by Brawley police and the pair ~~were~~ arraigned for a hearing. Only loss Bill suffered was one night of sleep.

-----0-----

New Mud pots appeared 14 miles southeast of Mexicali in early September similar to the formations at Salton Sea, with spewing gas, etc. Local people feared a volcano was about to erupt and newspapers spread the word. Geologists from Mexico City soon squelched fears with the belief that it was a small mud pot forming along the old fault line.

-----0-----

The L.A. Examiner Newspaper for September 7th under Bert Twillegar's column states; "Warden Jim Reynolds tells me.... There was one solid mass of doves from one end of the Valley to the other over opening weekend.....Tsh,tsk.

-----0-----

One afternoon in October a rowboat containing a 16-gauge shotgun and a pair of hip boots was found floating on the salton sea about 2 miles west of refuge Unit II. To date no one has claimed the articles and the story behind the whole thing poses a real mystery to the sherriff's office.

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The W.J. Vogel Company of Brawley is representative for an automatic carbide exploder designed for crop protection. The item turned out to be the same Japanese "popper" demonstrated by Mr. Ade Zajance one year ago. The exploder sells under the name brand of Sentinel.

-----0-----

Baxter Loveland of the Imperial County Farm Bureau and Robert Jefferson, Imperial County Fish and Game Association testified before a State Senate Interim Committee on Fish and Game November 21st regarding inundation of refuge lands, widgeon damages, etc. Mr. C. Losteter was only service representative present.

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On December 17th the California Assembly sub-committee on inland fishing and upland game held a hearing at El Centro on Salton Sea fish experimental program, waterfowl management and refuge areas, and acquisition - development of lands along the Colorado river.

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On December 30th the California Beaches and Parks announced plans to spend 35 million dollars of tideland oil royalties on beaches and parks during the 1956-60 fiscal year.

Among local consideration was the Colorado River - Picacho park area, Anza-Borrego park addition and improvements, Imperial Sand Hills park, and addition to the Salton Sea beach in Riverside county.

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During the period our Unofficial "assistant" at sub-headquarters handled more than 200 telephone and door inquiries as well as innumerable radio communication calls.

-----0-----

Sylvester Farros, irrigator, came up with a different reply when he happened upon an unsuspecting hunter who had sneaked over the refuge line in hopes of getting his limit of geese. The hunter shaggrined, sauntered out and pointing to a refuge sign remarked as how those damned geese must be able to read. Sylvester cheerfully agreed and offered, "I think maybe they can read.....better than you!"

-----0-----

One of our youngsters came up with the worst "pun" of the season... Thinks all of those illegal characters we discuss so often are sick birds....(ill-eagles that is).

-----0-----

Late in the first half of the season we came across a penciled notation on one of our boundary signs:

"Wild goose plus hunter equals X - - - - -
X equals enjoyment."

This seemed a very unusual equation. But, as one of our mathematical superiors once pointed out, it could be flexible..... As we see it, if "X equals enjoyment", then wild goose minus X equals hunter. Or, hunter minus X equals wild goose. Or, wild goose equals X (enjoyment) minus hunter. Or, for a complete algebraic switch, wild goose equals enjoyment minus hunter!

-----0-----

A department of Interior news release dated November 24th discusses the Service's search and discovery of lamprey poisons, etc. The item appeared in a local newspaper along side a column praising the Hammond Bay Fisher Laboratory, near Rogers City, Michigan, which, "tested more than 5,000 chemical substances that might kill baby lampreys, etc, etc. Both articles very similar, neither mentioned research work other than it's own.....Confusing we thought.

-----0-----

In the publication Wyoming Wildlife for August 1955 R.M. Ballou relates that "Eighty-two per cent of the geese banded on Pathfinder Reservoir (Wyoming) from 1952 to 1954 were taken by hunters in the




Pacific Flywayan annual hunting season mortality of about 55 per cent is indicated. A theoretic 50 per cent reduction in the Canada goose population in four years.....(About half of the Pathfinder returns are from Salton Sea area).

-----0-----

The January 1956 issue of Family Circle Magazine has an article describing Imperial Valley, Salton Sea and the general area. Author Lauritzer presents a rather flowery picture. Even mentions experience with Gila Monsters.

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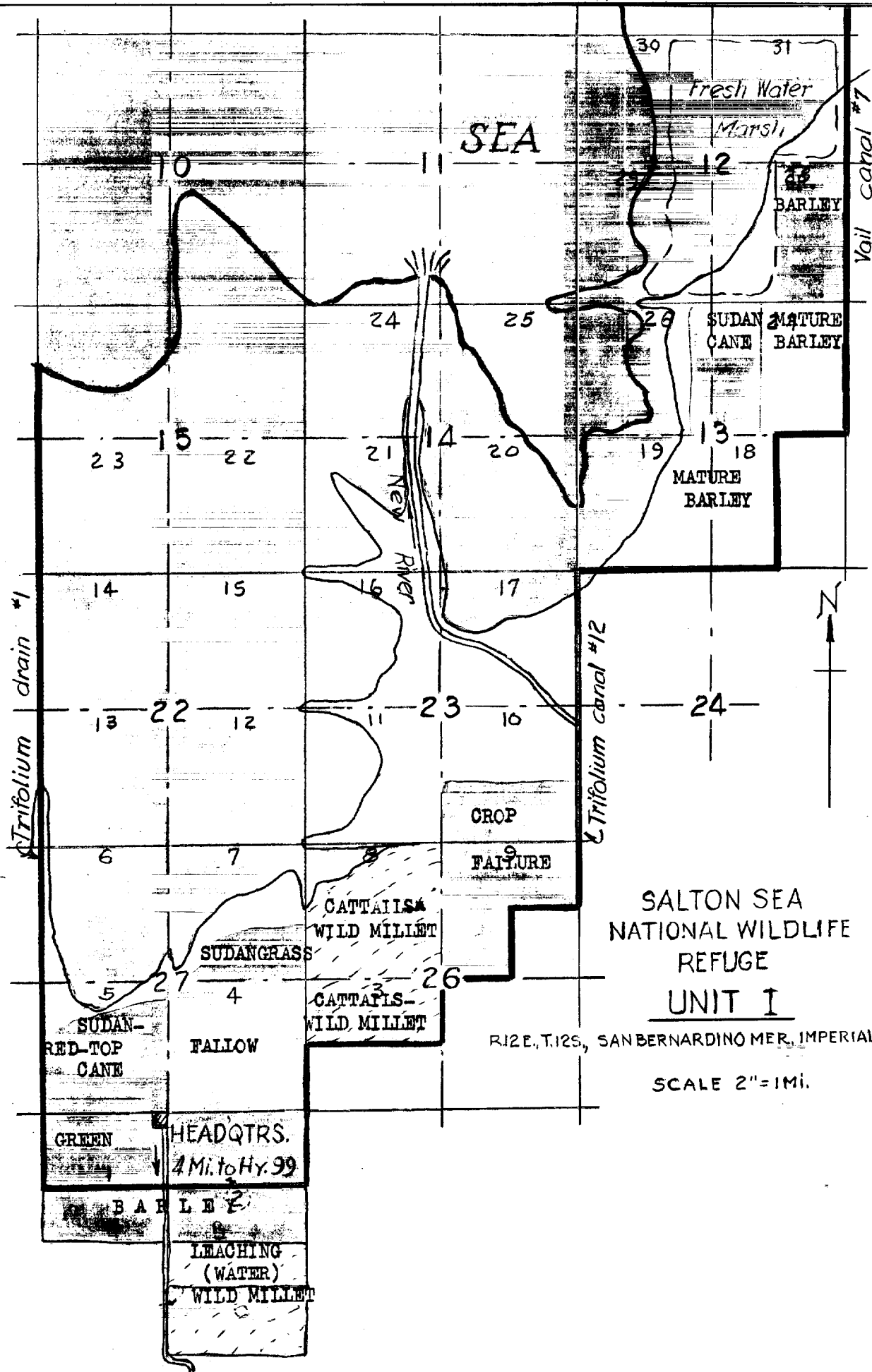
Respectfully submitted,

Edward J. O'Neill
Refuge Manager

Approved: _____

Credit Department.....Credit is due Mr. Muess who wrote the section on Migratory Waterfowl; to Mr. Cuddy for editing and typing work.



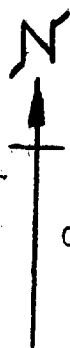
SALTON SEA
NATIONAL WILDLIFE
REFUGE
UNIT 1

R12E, T12S, SAN BERNARDINO MER., IMPERIAL CO., CALIF.

SCALE 2"=1 Mi.

SALTON

SEA



CALIFORNIA
DEPT.
FISH &
GAME

Vail canal #5

MATURE
BARLEY

GREEN
BARLEY

(Private)

GREEN
BARLEY
GR.
SUDAN BRLY.
CANE

(Private)

CATTAILS-
WILD MILLET
SUDANGRASS-
RED-TOP CANE

(Private)

SUB-HQTRS.

Laternal Rd.

CALIPATRIA TOMMES

GREEN
BARLEY

MATURE
BARLEY

(Private)

CALIF.
DEPT.
FISH &
GAME

(Private)

Vail canal #5

SALTON SEA NATIONAL WILDLIFE REFUGE

UNIT II

SCALE 2"=1 MI.

R. 13 E., T. 11 S., SAN BERNARDINO MER. IMPERIAL CO. CALIF.

WATERFOWL

REFUGEE Salton Sea National Wildlife Refuge

MONTHS OF September TO December, 1955

(2)												
Weeks of reporting period												
(1)												
Species	1	2	3	4	5	6	7	8	9	10	11	12
Swans:												
Whistling												
Trumpeter												
Geese:												
Canada												
Cackling												
Brant												
White-fronted												
Snow												
Blue												
Other												
Ducks:												
Mallard												
Black												
Gadwall												
Baldpate												
Pintail												
Green-winged teal												
Blue-winged teal												
Cinnamon teal												
Shoveler												
Wood												
Redhead												
Ring-necked												
Canvasback												
Scaup												
Goldeneye												
Bufflehead												
Ruddy (Unidentified)												
Other (Unidentified)												
Various Tree Duck												
Coot:												

5717

1974

1975

1976

3 -1750a

Cont. NR-1

(Rev. March 1953)

WATERFOWL

(Continuation Sheet)

REFUGEE Salton Sea National Wildlife Refuge

MONTHS OF September

TO December, 1955

(1) Species	(2) Weeks of reporting period												(3) Estimated : Production		(4) : waterfowl : Broods: Estimated : seen : total	
	: 11 : 12 : 13 : 14 : 15 : 16 : 17 : 18 :												: days use :	: seen :		: total :
	: 11 : 12 : 13 : 14 : 15 : 16 : 17 : 18 :															
Swans:																
Whistling Trumpeter	Aerial Census															
Geese:																
Canada	60		630	470	720	700	930						22,357	23		
Cackling				1												
Brant																
White-fronted																
Snow	800		800	1230	585	320							14,030			
Blue			6000	10,700	11,000	10,000	1135						315,637			
Other (None?)			3										21			
Ducks:																
Mallard	130			20	10								1,705			
Black																
Gadwall				30									393			
Baldpate	14,330		5,200	2700	3300	1700	2330						214,080			
Pintail	5,010		7,300	6025	2300	1530	3000						385,630			
Green-winged teal	11,010		2,840	2480	2300	3300	5760						342,825			
Blue-winged teal																
Cinnamon teal													33,775			
Shoveler	9,530		1,400	1910	1030	1700	2330						232,935			
Wood																
Redhead	30			30	10	10							1,030			
Ring-necked																
Canvasback	90			260	300	40	500						9,220			
Scaup	10		30	80	100	10							2,835			
Goldeneye			16	20	10	10							352			
Bufflehead			6	2	10	10							371			
Ruddy	2,000		300	1830	2000	1300	775						104,944			
Other (Unidentified)													10,300			
Fulvous Tree Duck													2,212			
Coot:	9,300		2,000	1,310	1,000	1,530	16700						342,300			

(over)

	(5) Total Days Use	(6) Peak Number	(7) Total Production	SUMMARY
Swans				Principal feeding areas <u>Refuge food plots and water areas</u>
Geese	101,055	12,351		Principal nesting areas <u>Salton River</u>
Ducks	1,350,200	12,220		
Coots	112,300	16,774		
Reported by <u>Edward J. O'Neill</u> <u>Refuge Manager</u>				

INSTRUCTIONS (See Secs. 7531 through 7534, Wildlife Refuges Field Manual)

- (1) Species: In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and national significance.
- (2) Weeks of Reporting Period: Estimated average refuge populations.
- (3) Estimated Waterfowl Days Use: Average weekly populations x number of days present for each species.
- (4) Production: Estimated number of young produced based on observations and actual counts on representative breeding areas. Brood counts should be made on two or more areas aggregating 10% of the breeding habitat. Estimates having no basis in fact should be omitted.
- (5) Total Days Use: A summary of data recorded under (3).
- (6) Peak Number: Maximum number of waterfowl present on refuge during any census of reporting period.
- (7) Total Production: A summary of data recorded under (4).

3-1751

Form NR-1A

(Nov. 1945)

MIGRATORY BIRDS

(other than waterfowl)

Refuge Salton Sea (California) Months of September to December 195 5

(1) Species Common Name	(2) First Seen		(3) Peak Numbers		(4) Last Seen		(5) Production		(6) Total Estimated Number
	Number	Date	Number	Date	Number	Date	Number Colonies	Total # Nests	Total Young
<u>I. Water and Marsh Birds:</u>									
<u>Wood ibis</u>	previous period		1500	9/18					
<u>Clayton ibis</u>	" "		1	12/25					
<u>Least Bittern</u>	1	11/23	1						
<u>Am.</u>	previous period		10	9/30					
<u>Common I gret</u>	" "		45	10/7					
<u>Snowy</u>	" "								
<u>B.-Gr. Ht. Heron</u>	" "								
<u>Gallinule</u>	" "								
<u>Western Grebe</u>	" "								
<u>Barred Grebe</u>	" "								
<u>Pied-billed "</u>	" "								
<u>Grebe</u>	" "								
<u>White Pelican</u>	" "		200	9/20					
<u>Brown Pelican</u>	" "		7	9/19					
<u>Cormorant</u>	" "		200	9/21					
<u>Shorebirds, Gulls and Terns:</u>	13	10/21	27	10/22	5	12/1			
<u>Lesser Yellowlegs</u>	" "								
<u>Greater</u>	" "								
<u>Godwit</u>	" "		100	9/21					
<u>Pillet</u>	" "		25	11/8					
<u>L-S Curlew</u>	" "		6000	10/15					
<u>B-bellied Plover</u>	1	9/29	20	11/12					
<u>Avocet</u>	Previous period								
<u>B-necked Stilt</u>	" "								
<u>St Lt Sandpiper</u>	4	9/18							
<u>Red Phalarope</u>	1	10/3							
<u>Northem "</u>	90	9/30							
<u>Black Turn</u>	previous period		500	9/21					
<u>Forster's Tern</u>	" "		45	9/21					
<u>Caspian</u>	" "		22	10/17					
<u>Sol. Sandpiper</u>	2	9/30		(over)					

(1)	(2)	(3)	(4)	(5)	(6)
III. <u>Doves and Pigeons:</u> Mourning dove White-winged dove	No	Est.			
IV. <u>Predaceous Birds:</u> Golden eagle Duck hawk Horned owl Magpie Raven Crow	1 1 previous period 2	11/29 9/1 previous period 9/3	2		
					Reported by.....

INSTRUCTIONS

- (1) Species: Use the correct names as found in the A.O.U. Checklist, 1931 Edition, and list group in A.O.U. order. Avoid general terms as "seagull", "tern", etc. In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance. Groups: I. Water and Marsh Birds (Gaviiformes to Ciconiiformes and Gruiformes)
II. Shorebirds, Gulls and Terns (Charadriiformes)
III. Doves and Pigeons (Columbiformes)
IV. Predaceous Birds (Falconiformes, Strigiformes and predaceous Passeriformes)
- (2) First Seen: The first refuge record for the species for the season concerned.
- (3) Peak Numbers: The greatest number of the species present in a limited interval of time.
- (4) Last Seen: The last refuge record for the species during the season concerned.
- (5) Production: Estimated number of young produced based on observations and actual counts.
- (6) Total: Estimated total number of the species using the refuge during the period concerned.

BIG GAME

Refuge Salt Lake National Wildlife Refuge Calendar Year 1955

(1) Species Common Name	(2) Density Cover types, total Acreage of Habitat	(3) Young Produced Number	(4) Removals				(5) Losses			(6) Introductions		(7) Estimated Total Refuge Population		(8) Sex Ratio
			Hunting	For Re- stocking	Sold	For Research	Predation	Disease	Winter Loss	Number	Source	At period of Greatest use	As of Dec. 31	
		<u>NO</u>			<u>NO</u>			<u>NO</u>		<u>NO</u>	<u>NO</u>			

Remarks:

Reported by _____

Form NR-3 - BIG GAME

INSTRUCTIONS

- (1) SPECIES: Use correct common name; i.e., Mule deer, black-tailed deer, white-tailed deer. It is unnecessary to indicate sub-species such as northern or Louisiana white-tailed deer.
- (2) DENSITY: Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge: once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.
- (3) YOUNG PRODUCED: Estimated total number of young produced on refuge.
- (4) REMOVALS: Indicate total number in each category removed during the year.
- (5) LOSSES: On the basis of known records or reliable estimates indicate total losses in each category during the year.
- (6) INTRODUCTIONS: Indicate the number and refuge or agency from which stock was secured.
- (7) TOTAL REFUGE POPULATION: Give the estimated population of each species on the refuge at period of its greatest abundance and also as of Dec. 31.
- (8) SEX RATIO: Indicate the percentage of males and females of each species as determined from field observations or through removals.

DISEASE

Refuge Salton Sea Refuge (Calif.)

Year 1953

Botulism

Lead Poisoning or other Disease

Period of outbreak _____

Kind of disease _____

Period of heaviest losses _____

Species affected _____

Losses:

	Actual Count	Estimated
(a) Waterfowl	_____	_____
(b) Shorebirds	_____	_____
(c) Other	_____	_____

Number Affected Species	Actual Count	Estimated
_____	_____	_____
_____	_____	_____
_____	_____	_____

Number Hospitalized _____ No. Recovered _____ % Recovered _____

Number Recovered _____

(a) Waterfowl	_____
(b) Shorebirds	_____
(c) Other	_____

Number lost _____
Source of infection _____

Areas affected (location and approximate acreage) _____

Water conditions _____

Water conditions (average depth of water in sickness areas, reflooding of exposed flats, etc.) _____

Food conditions _____

NO DISEASE

NO DISEASE

Condition of vegetation and invertebrate life _____

Remarks _____

Remarks _____

(Marsh - Aquatic - Upland)

Year 195...

TOTAL ACREAGE PLANTED:

Marsh and aquatic
Hedgerows, cover patches
Food strips, food patches
Forest plantings

CULTIVATED CROPS

Refuge California Year 1953

Permittee (If farmed by refuge personnel, so indicate)	Permit No.	Unit or Loca- tion	Crops Grown	Avg. Yield per Acre	Permittee's Share		Government's Share or Return				
					Acres	Bu. Har- vested	Harvested		Unharvested		Compensatory Services, or Cash Revenue
							Acres	Bu.	Acres	Bu.	
UNIT I			Wildmillet						90		
			Barley (green)					400			
			Barley (grain)					150			
			Swainsona- Red-top clover					200			
			Cattails					90			
UNIT II			Barley (green)					400			
			Barley (grain)					200			
			Swainsona- Red-top clover					140			
			Cattails					90			
			Wild Millet					90			

Summary of Crops Grown:	Crop	Acreage	Permittee's Share		Government's Share		Total Revenue	
			Acres	Bushels	Harvested Acres	Unharvested Acres Bu.	Bu.	\$
Interior Duplicating Section, Wash.D.C.	Barley (green)	680				1100	1200 tons @	(12.5/Ac)
	Barley (grain)	120				400	1200 tons	(12.5/Ac)
	Swainsona	140				140	1200 tons	(12.5/Ac)
	Red-top clover	140				140	1200 tons	(12.5/Ac)
	Cattails	180				180	1200 tons	(12.5/Ac)

DIRECTIONS FOR PREPARING FORM NR-8
CULTIVATED CROPS

Cultivated Crops Report Form NR-8 should be prepared on a calendar-year basis for all crops harvested or utilized during the calendar year and submitted with the December 31 refuge report.

Permittee - List each permittee separately. If lands of the refuge are farmed by refuge personnel or hired labor, this should be indicated in the Permittee column.

Permit No. - List the number of the Special Use Permit issued to the individual.

Use or location - The Unit No. or name specified in the Economic Use Plan should be listed in this column.

Crops Grown - A separate line of the form should be used for each crop grown by each permittee or by refuge personnel. This is important, since if each crop grown by each operator is not specifically enumerated, the report will be of no value for statistical purposes.

Average Yield per Acre - It is important that the average yield per acre of each crop grown by each operator should be shown.

Permittee's Share - Only the number of acres harvested or utilized by the permittee for his own benefit should be shown under the Acres column, and only the number of bushels of farm crops harvested by the permittee for himself should be shown under the Bushels Harvested column. It is requested that all crops harvested be reduced to bushels wherever possible, or, as in the case with the harvesting of seed such as that of sweet clover, alfalfa, bromegrass, etc., the total harvested crop in pounds may be shown. Timothy, alfalfa, or other hay harvested by the permittee should be shown on Form NR-10 and should not be shown in the Permittee's Share column.

Government's Share or Return - Harvested - Show the number of bushels harvested for the Government and the acreage from which this share is harvested, both for grain raised by refuge personnel and by permittees. Unharvested - show the exact number of acres of crops allowed to remain unharvested as food and cover for wildlife. An estimate of the number of bushels of grain that is available for the wildlife in such unharvested crops should be shown in the Bushels column.

Compensatory Services, or Cash Revenue - Show other services received by the Government in cooperative farming activities, the number of acres of food strips planted for wildlife, the amount of wildlife crops not otherwise reported that are planted by cooperators for the Service, or the cultivation of wildlife plantations. If the permit is on a fee basis, the total cash revenue received by the Service.

REFUGE GRAIN REPORT

Refuge Salton Sea Refuge (Calif.) Months of September through December, 1955

(1) VARIETY*	(2) ON HAND BEGINNING OF PERIOD	(3) RECEIVED DURING PERIOD	(4) TOTAL	(5) GRAIN DISPOSED OF				(6) ON HAND END OF PERIOD	(7) PROPOSED OR SUITABLE USE*		
				Transferred	Seeded	Fed	Total		Seed	Feed	Surplus
Maricout Barley		600	600		---			600	X		
Henschen Barley	800	---	800		800		800	---			
Feed Barley	200	---				100	100	100		X	

Refuge grain storage shed

(8) Indicate shipping or collection points

(9) Grain is stored at

(10) Remarks

*See instructions on back.

REFUGE GRAIN REPORT

This report should cover all grain on hand, received, or disposed of, during the period covered by this narrative report.

Report all grain in bushels. For the purpose of this report the following approximate weights of grain shall be considered equivalent to a bushel: Corn (shelled)—55 lb., corn (ear)—70 lb., wheat—60 lb., barley—50 lb., rye—55 lb., oats—30 lb., soy beans—60 lb., millet—50 lb., cowpeas—60 lb., and mixed—50 lb. In computing volume of granaries, multiply the cubic contents (cu. ft.) by 0.8 bushels.

- (1) List each type of grain separately and specifically, as flint corn, yellow dent corn, square deal hybrid corn, garnet wheat, red May wheat, durum wheat, spring wheat, proso millet, combine milo, new era cowpeas, mikado soy beans, etc. Mere listing as corn, wheat, and soybeans will not suffice, as specific details are necessary in considering transfer of seed supplies to other refuges. Include only domestic grains; aquatic and other seeds will be listed on NR-9.
- (3) Report all grain received during period from all sources, such as transfer, share cropping, or harvest from food patches.
- (4) A total of columns 2 and 3.
- (6) Column 4 less column 5.
- (7) This is a proposed break-down by varieties of grain listed in column 6. Indicate if grain is suitable for seeding new crops.
- (8) Nearest railroad station for shipping and receiving.
- (9) Where stored on refuge: "Headquarters granary," etc.
- (10) Indicate here the source of grain shipped in, destination of grain transferred, data on condition of grain, unusual uses proposed.

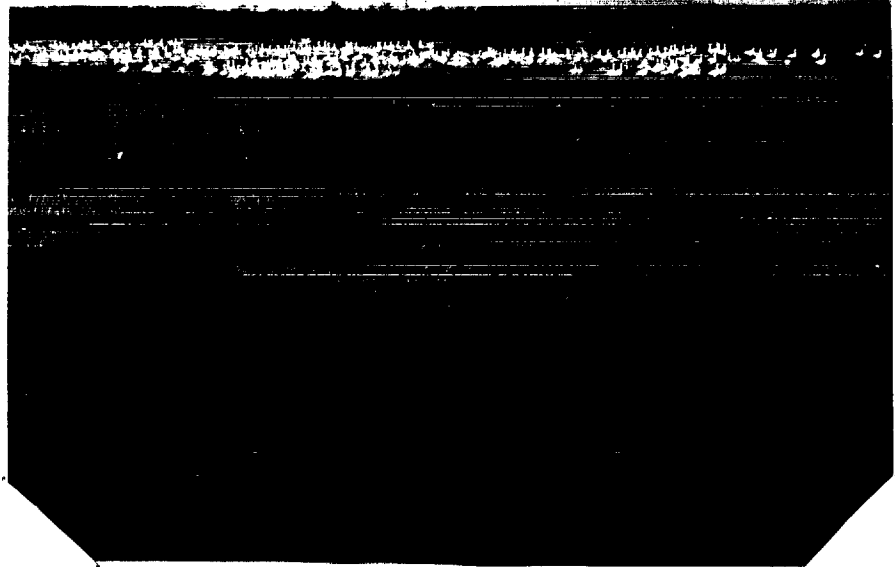
HAYING AND GRAZING

Refuge Salton Don Refuge Year 1955

Permittee	Permit No.	Unit or Location	Actual Acreage Utilized	Animal Use Months	Tons of Hay Harvested	Period of Use From - To	Rate	Total Income	Remarks
		NO	ACTIVITIES		INELING	PERIOD			

Totals:

Acreage grazed..... Animal use months..... Total income Grazing.....
 Acreage cut for hay..... Tons of hay cut..... Total income Haying.....

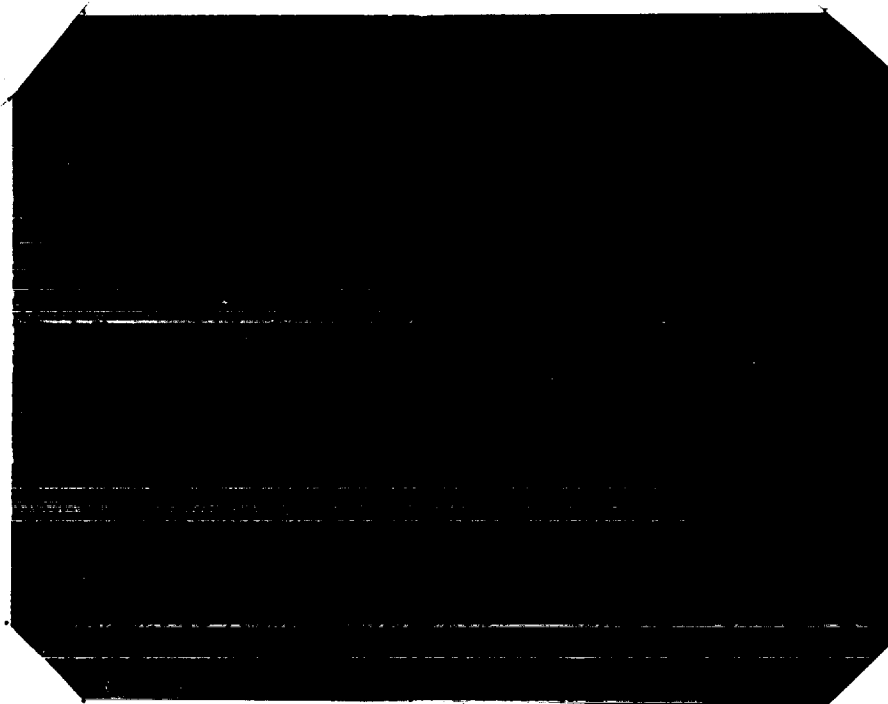


Snow geese and Pintails Tracts 4, Unit II..
.....BEFORE (Dec. 1955)



AFTER Same area occupied by hunters.

Refuge Clerk Joe Cuddy examining Wild Millet crop
at Tract C, Unit I. (September 1955)



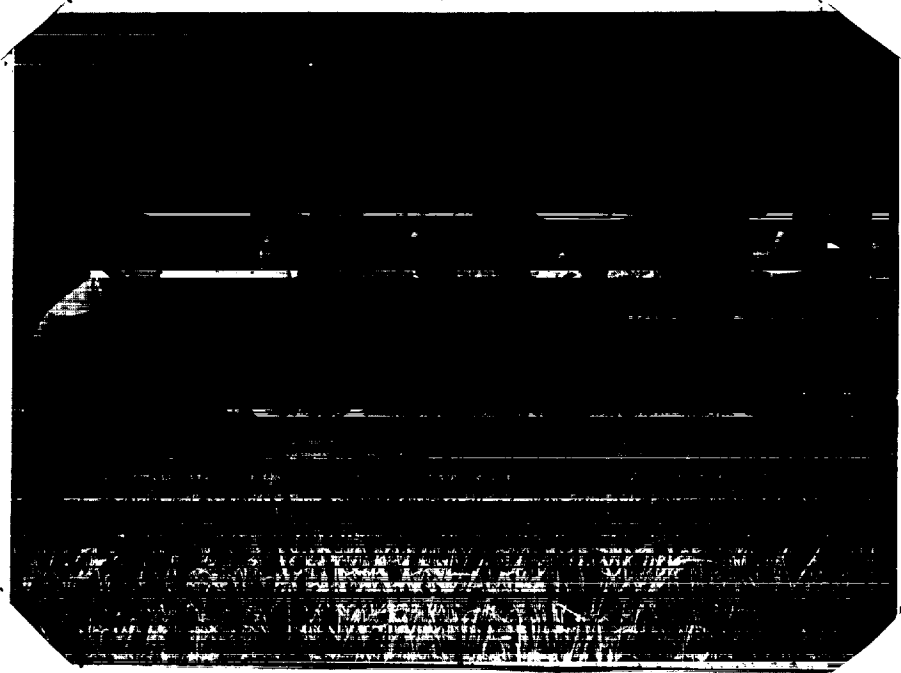
Crops of Wild Millet helped tremendously to keep
Redwing Blackbirds from farmers crops. (October 1955)



Snow Geese and Ducks consuming last of 90 acre
crop of cattails at Unit I. (In this area
Widgeon outnumbered Snow & White-fronted Geese)
(November 1955)



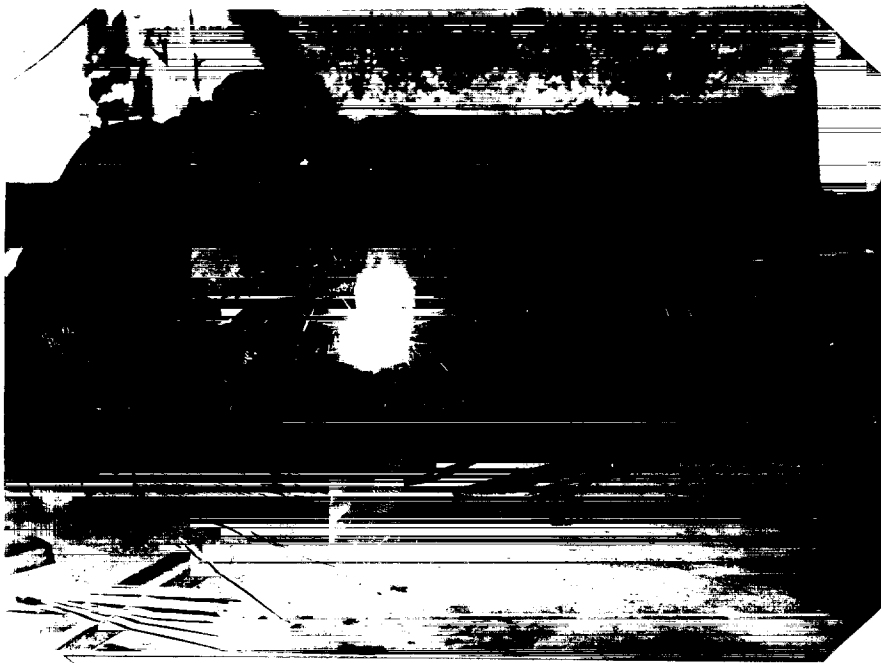
L.A. Audubon Society members Pat Gould, Bill Hawkins,
Paul Herman, John Tramantano, Brian Doly, Bill Loft-
house, and Arnold Small participated in Christmas bird
census at Salton Sea. (December 1955)



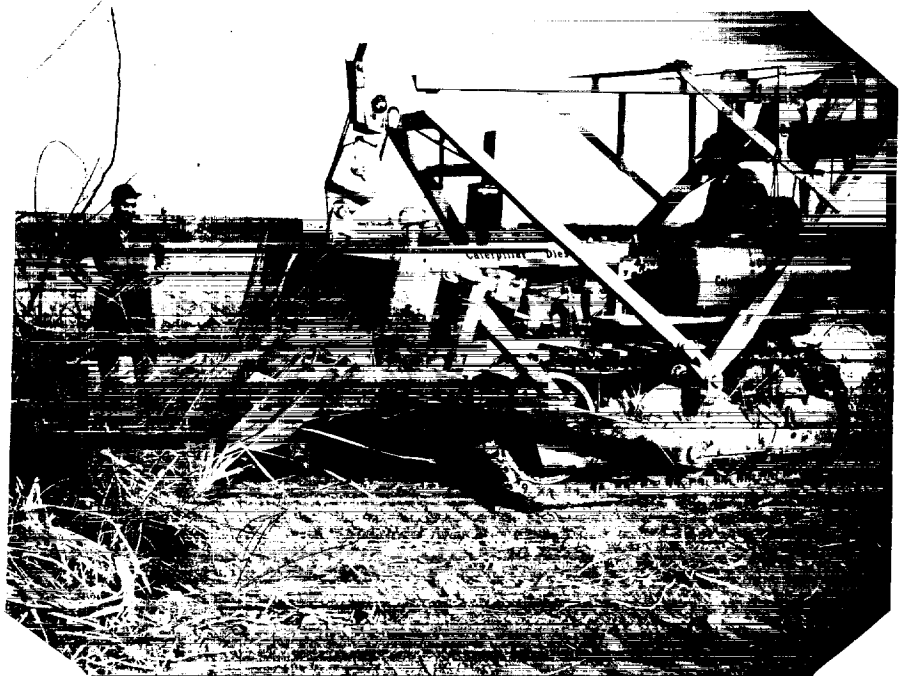
Game Depredations tour members who traveled over refuge units and state shooting grounds inspect wister area barley. (Mgr. J. Parrish, C. Lostetter, J. Reynolds, B. Loveland, H. Loveland, (Back row) R. Miller, W. Casey, P. Sprowl, J. Jansson, E.W. Stadler. (September 1955)



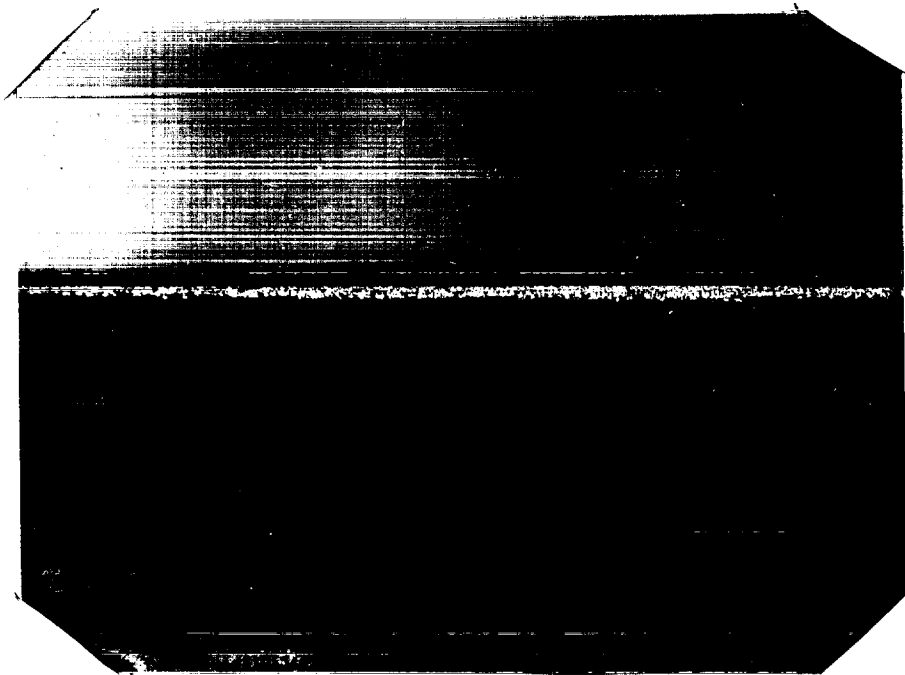
Depredations group at state wister area rice field. (J. Laughlin, C. Lostetter, P. Sprowl, H. Loveland, B. Loveland, J. Reynolds, J. Jansson, J. Hunziker, J. Parrish, W. Stadler). (September 1955)



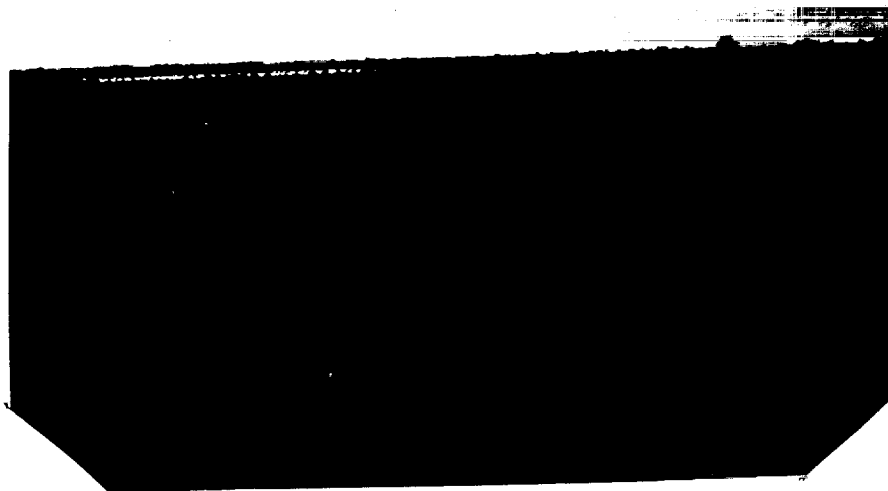
Mechanic H. Steer designed & constructed a 'dozer attachment for piling debris & growths which occurred on Unit "A" contours. (December 1955)



Mr. Steer & Tractor Operator McFarland testing tool which is removable & capable of clearing debris even when buried 18 inches below surface. (December 1955)



Tracts 15-21 Unit II before refuge hunting
opened....Snow geese with Canadas. (Dec. 1955)



Same field as above after season opened...
Hunters with decoys.

100

101

102

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